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09/922,048	08/03/2001	James Marshall Oathout	SS-3060 US NA	7560

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EXAMINER	
VANATTA, AMY B	
ART UNIT	**PAPER NUMBER**
3765	9

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/922,048	OATHOUT ET AL.
	Examiner	Art Unit
	Amy B. Vanatta	3765

-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *14* is/are withdrawn from consideration.

5)☒ Claim(s) *13* is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,5,6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Invention I in Paper No. 8 is acknowledged. The traversal is on the ground(s) that a process of hydroenhancing a woven or knit fabric (as the apparatus can be used for) is not a materially different process from Invention I. This is not found persuasive because the starting material used in a process is given patentable weight when the manipulative steps are performed on this material, and the effect of fluid jets on a woven or knit fabric is different from the effects of those jets on a non-woven fabric. Applicant's claims are drawn specifically to treatment of a non-woven fabric, not to treatment of a woven or knit fabric, which treatment may have different effects or results. Thus, the examiner maintains that the apparatus can be used for a materially different process, such as a process of hydroenhancing a woven or knit fabric.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities:

On page 2, in the Brief Description of the Drawings, Fig. 1A is listed (first line of Brief Description), however there is no Fig. 1A is the drawings. It appears that this should read as "1B".

On page 3, line 24 reads "elements 21 in Fig. 2", however there is no reference numeral 21 shown in Fig. 2.

On page 4, lines 8 and 10, the symbol for the angles with subscript 1,2, and 3 is missing.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russian Patent No. 432934 in view of Canadian Pat. No. 739,652.

Russian Patent No. 432934 discloses a method for changing the orientation of fibers in a nonwoven web including steps of providing a plurality of fluid jets offset at an appreciable angle from the perpendicular with respect to the web (see Fig. 1). A plurality of fluid streams are applied from the jets onto a surface of the nonwoven web, with the streams forming a substantially coplanar curtain (3'). The streams have sufficient pressure to move the fibers into a different orientation (see Abstract, which discloses that the fibers are moved into parallelization by longitudinal forces of the jets, while transverse forces move the fibers apart).

Russian Pat. No. 432934 does not disclose that the fibers are locked to maintain their different orientation, as recited in claim 1, however nonwoven fabrics are commonly treated after hydroentanglement or other hydrodynamic processes to lock the fibers in place. Canadian Pat. No. 739,652 teaches that it is conventional to bond the fibers or apply a binder to the fibers of the non-woven after treatment with fluid jets. On page 56, lines 29-30, the patent teaches that the product produced by the fluid jet treatment process may be bonded after treatment with the jets. Such bonding locks the fibers in place, as is well known in the art, and results in a strong more stable non-woven. It would have been obvious to one having ordinary skill in the art at the time the invention was made lock the fibers of the non-woven of Russian Pat. No. 432934 in place by bonding, as taught by Canadian Pat. No. 739,652, in order to provide a stronger, more stable product.

Regarding claims 2-4, the jet streams (3' or 3) in Russian Pat. No. 432934 impinge on the fibers as the fibers are randomly arranged on the conveyor 2. In this random arrangement, some fibers inherently are oriented in the machine direction. Due to the random and intertwined arrangement, the streams would clearly impinge on at least some fibers of these machine direction fibers at their leading ends, on at least some fibers on the trailing ends, and on at least some fibers on their side. Due to the size and extent of the jets streams as shown in Figs. 1 and 2, some jet streams would inherently impinge on these portions of some fibers, since the fibers are in different positions under the jet stream. Thus, the limitations of claims 2-4 are inherently met by the process as disclosed in Russian Pat. No. 432934.

Regarding claim 5, Russian Pat. No. 432934 disclose that the angle between the jet streams 3,3' is 120-150 degrees, The patent does not disclose that the jets are at an angle in the range of 10-50 degrees with respect to the plane as recited in claim 5. Also, the range of 20-30 degrees as recited in claim 6 is not disclosed. One having routine skill in the art would recognize that the optimum angle of the jet stream (3 or 3') in the Russian patent can be determined through routine experimentation depending upon the type of fibers which are being treated, the speed at which the conveyor moves, the pressure of the jets streams and other related processing factors. It is within the routine skill in the art to determine such an angle as is optimal for the desired end product, based upon these processing parameters. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the jet streams at an angle within the range of 10-50 or 20-30 degrees in Russian Pat. No. 432934 since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 7, the Russian patent shows fluid jets arranged in two rows (3,3') such that curtains from the fluid jets are oriented at an angle with respect to the vertical and are offset from each other. The jets 3,3' clearly provide perturbation of fibers from their leading edges, trailing edges, and sides, due to the variety in position of the fibers forming the web, as discussed above. The Russian patent does not disclose that the offset angle as being between 5 and 30 degrees, however it is within the routine skill in the art to determine such a range based upon the speed at which the conveyor

moves, the pressure of the jets streams and other related processing factors. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the jet streams 3,3' as offset at an angle between 5 and 30 degrees in Russian Pat. No. 432934 since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claims 8 and 9, the fluid used in the process of Russian Pat. No. 432934 is water, as is evident from the Abstract which discloses the treatment as a "wet" treatment.

Regarding claim 11, it is unclear how the fiber web is formed upon the conveyor in the Russian patent, however the techniques disclosed in claim 11 are conventional in the art. Canadian Pat. No. 739,652 teaches that the initial fiber batt layer may be formed by carding (see, e.g., pg. 13, line 7). It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the fibrous batt upon the conveyor in Russian Pat. No. 432934 by means of carding, in order to produce a web which is easily treated by fluid jets, as is disclosed by Canadian Pat. No. 739,652.

5. Claims 1-4, 8-10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (US 6,571,441) in view of Dodson, Jr. et al (US 3,353,225).

Kobayashi et al disclose a method for changing the orientation of fibers in a nonwoven web including steps of providing a plurality of fluid jets offset at an appreciable angle from the perpendicular with respect to the web (see Fig. 1, showing the jets as perpendicular with respect to the longitudinal direction of the web). A plurality of fluid streams are applied from the jets onto a surface of the nonwoven web, with the streams forming a substantially coplanar curtain. The streams have sufficient pressure to move the fibers into a different orientation (col. 4, lines 12-32).

Kobayashi does not disclose that the fibers are locked to maintain their different orientation, as recited in claim 1, however nonwoven fabrics are commonly treated after hydroentanglement or other hydrodynamic processes to lock the fibers in place. Dodson teaches that it is conventional to apply a binder to the fibers of the non-woven after treatment with fluid jets in order to impart strength and coherence to the structures (col. 1, lines 45-48). Application of such a binder is well known in the art and results in a locking of the fibers. It would have been obvious to one having ordinary skill in the art at the time the invention was made lock the fibers of the non-woven of Kobayashi in place by applying a binder in order to impart strength and coherence to the web, as disclosed by Dodson.

Regarding claims 2-4, the jet streams in shown by Kobayashi impinge on the fibers as the fibers are randomly arranged on the support. In this random arrangement, some fibers inherently are oriented in the machine direction. Due to the random and intertwined arrangement, the streams would clearly impinge on at least some fibers of these machine direction fibers at their leading ends, on at least some fibers on the

trailing ends, and on at least some fibers on their side. Due to the size and extent of the jets streams, some jet streams would inherently impinge on these portions of some fibers, since the fibers are in different positions under the jet stream (se Fig. 6). Thus, the limitations of claims 2-4 are inherently met by the process as disclosed by Kobayashi.

Regarding claims 8-10, Kobayashi does not disclose what type of fluid is used in the jets, however gas or liquid, and in particular water or air, are conventionally used for such hydroentanglement processes. Dodson discloses that the fluid used in the jets in his process may be water or air (col. 6, lines 9-15). Dodson teaches that gas and water are conventionally used in the art (col. 1, lines 31-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use water or air as the fluid in the jets of Kobayashi, since such fluids are conventionally used for hydroentangling jets as taught by Dodson.

Regarding claim 12, Kobayashi teaches that the method increases the fiber entanglement within the web. Such an increase in fiber entanglement would inherently increase the opacity of the web, although Kobayashi does not specifically address web opacity. One having routine skill in the art would recognize that the jet pressure, the speed at which the conveyor moves, and other related processing factors may be adjusted in order to produce a web having desired characteristics, such as degree of entanglement or degree of opacity. It would require only ordinary skill in the art to determine through routine experimentation the optimum parameters to result in optimum opacity depending upon desired end use. . It would have been obvious to one having

ordinary skill in the art at the time the invention was made to increase the opacity of the web by about 2.5%, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 1-4, 8-9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al (US 6,571,441) in view of Kalwaites (US 3,873,255).

Kobayashi et al disclose a method for changing the orientation of fibers in a nonwoven web including steps of providing a plurality of fluid jets offset at an appreciable angle from the perpendicular with respect to the web (see Fig. 1, showing the jets as perpendicular with respect to the longitudinal direction of the web). A plurality of fluid streams are applied from the jets onto a surface of the nonwoven web, with the streams forming a substantially coplanar curtain. The streams have sufficient pressure to move the fibers into a different orientation (col. 4, lines 12-32).

Kobayashi does not disclose that the fibers are locked to maintain their different orientation, as recited in claim 1, however nonwoven fabrics are commonly treated after hydroentanglement or other hydrodynamic processes to lock the fibers in place. Kalwaites teaches that it is conventional to bond or apply a binder to the fibers of the non-woven after treatment with fluid jets in order to strengthen the web (col. 6, lines 28-39; col. 4, lines 45-54). Application of such a binder is well known in the art and results in a locking of the fibers. It would have been obvious to one having ordinary skill in the art at the time the invention was made lock the fibers of the non-woven of Kobayashi in

place by applying a binder or by bonding in order to impart strength and coherence to the web, as disclosed by Kalwaites.

Regarding claims 2-4, the jet streams in shown by Kobayashi impinge on the fibers as the fibers are randomly arranged on the support. In this random arrangement, some fibers inherently are oriented in the machine direction. Due to the random and intertwined arrangement, the streams would clearly impinge on at least some fibers of these machine direction fibers at their leading ends, on at least some fibers on the trailing ends, and on at least some fibers on their side. Due to the size and extent of the jets streams, some jet streams would inherently impinge on these portions of some fibers, since the fibers are in different positions under the jet stream (se Fig. 6). Thus, the limitations of claims 2-4 are inherently met by the process as disclosed by Kobayashi.

Regarding claims 8-9, Kobayashi does not disclose what type of fluid is used in the jets, however gas or liquid, and in particular water, are conventionally used for such hydroentanglement processes. Kalwaites discloses that the fluid used in the jets in his process may be gas or liquid (col. 7, lines 11-13), in particular water (col. 7, line 12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use water or gas as the fluid in the jets of Kobayashi, since such fluids are conventionally used for hydroentangling jets as taught by Kalwaites.

Regarding claim 11, it is unclear how the fiber web is formed upon the support in the method of Kobayashi, however the techniques disclosed in claim 11 are

conventional in the art. Kalwaites teaches that the initial fiber batt layer may be formed by carding or air laying (col. 6, lines 50-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the fibrous batt upon the support in Kobayashi by means of carding or air laying, in order to produce a web which is easily treated by fluid jets, as is disclosed by Kalwaites.

Regarding claim 12, Kobayashi teaches that the method increases the fiber entanglement within the web. Such an increase in fiber entanglement would inherently increase the opacity of the web, although Kobayashi does not specifically address web opacity. One having routine skill in the art would recognize that the jet pressure, the speed at which the conveyor moves, and other related processing factors may be adjusted in order to produce a web having desired characteristics, such as degree of entanglement or degree of opacity. It would require only ordinary skill in the art to determine through routine experimentation the optimum parameters to result in optimum opacity depending upon desired end use. . It would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the opacity of the web by about 2.5%, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

7. Claim 13 is allowed.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy B. Vanatta whose telephone number is (703) 308-2939. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Calvert can be reached on (703) 305-1025. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

Amy B. Vanatta
Primary Examiner
Art Unit 3765

abv
December 9, 2003